REMARKS

Applicants acknowledge with appreciation the withdrawal of the previously stated bases for the rejection of claims.

A Petition for Extension of Time (one month) and Information Disclosure Statement are being filed concurrently herewith. Claims 14 and 15 are being canceled without prejudice as they have proven to be redundant with respect to Claims 3 and 4 which are being retained.

Reconsideration of presently solicited powder metal composition Claims 1, 3 to 7, and 16 to 18 respectfully is requested. For the reasons indicated hereafter, these claims, particularly as amended herein, are urged to be in condition for allowance.

A Co-based powder metal composition is provided which includes graphite and a C content of less than 0.3% by weight which is capable of being compacted to a product of high green strength as indicated at Tables 4 and 5 (Page 7) of Applicants' Specification. It is essential that all of the particles other than graphite be water atomised and pre-alloyed. The water atomised particles inherently display an irregular form which has been found to render them well suited for a high degree of compaction (i.e., high green density) in the context of the present invention. Higher green strengths are made possible and the green products are capable of being machined prior to sintering.

See Table 1 at Page 5 of Applicants' Specification. There embodiment "285" having a carbon content of 0.01% is in accordance with the present invention and embodiment "286" having a carbon content of 1.60% is presented for comparative purposes. In Tables 4 and 5 the test results are presented. Sample Nos. 1, 3 and 4

are in accordance with the present invention and provide superior results, and Sample Nos. 2 and 5 provide inferior comparative results. It is evident that a higher green density and higher green strength is achieved with the powder composition according to the invention. A low carbon content should be used when practicing the present invention and all metals must be prealloyed. The improved results achieved by Applicants are considered to be surprising. The presently claimed parameters and the results made possible thereby are neither disclosed nor suggested following a full reading of the prior art.

The continued rejection of presently solicited powder metal composition Claims 1, 3 to 7, and 16 to 18 under 35 U.S.C. §103(a) over the inadequate teachings of U.S. Patent No. 2,807,542 to Frank would be inappropriate. Frank is silent concerning the morphology of the powder and provides no guidance to a skilled person. In the context of the present invention it is essential that the Co-based pre-alloyed powder be water atomised, which would inherently yield the necessary irregularly shaped particles. In accordance with the teachings of Frank only some of the metal components are prealloyed. In the context of the present invention it is essential that all elements except graphite be pre-alloyed.

Reference to the teachings of U.S. Patent No. 5,002,731 to Crook et al. and 5,462,572 to Del Corso at Page 3 of the Official Action does not remedy basic deficiencies in the teachings of Frank. For instance, in Del Corso there always is a specified relationship between C and N. Also, in Del Corso there is no guidance with respect to carbon and a HIP process is used for consolidation as the compressibility of the material is considered to be low and a conventional compaction technique may not be used.

Frank contemplates that a high green strength is achieved when all elements in powder form are available in the composition. This is contrary to the concept of the present invention wherein all metallic elements are pre-alloyed in the metal powder.

Also, Frank contemplates a final sintering temperature of the different composition described therein between 1100°C and 1350°C. This is indicative of the fact that Frank is describing dissimilar technology. At such temperature, incipient melting would occur followed by loss of tolerance in the final product. If one were to attempt to use such sintering temperatures with the composition of the present invention, there would be the risk of the formation of microstructural defects. These would cause low fracture toughness and poor machinability. Additionally, there would be the risk for distortion of the final product due to such high sintering temperatures. The completely pre-alloyed Co-based water atomised powder of the present invention has the advantage that lower sintering temperatures may be used in the absence of harmful melting.

In summary, Frank lacks guidance that would aid one skilled in the art to arrive at Applicants' specifically-claimed contribution. No *prima facie* showing of obviousness is possible with respect to the claimed subject matter following a full consideration of the prior art teachings. It is basic to the examination process that in order to establish *prima facie* obviousness of a claimed invention, all of the claimed limitations must be present or reasonably suggested in the prior art. They are not. See M.P.E.P. §2143.03 in this regard. To establish *prima facie* obviousness of a claimed invention, all of the claimed limitations must be taught or suggested by the prior art. See *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). "All words

in a claim must be considered in judging the patentability of that claim against the prior art." *In re Wilson*, 424 F. 2d 1342, 165 USPQ 494 (CCPA 1970). If an independent claim is nonobvious under 35 U.S.C. §103, then any claim that depends therefrom is nonobvious. The withdrawal of the sole remaining ground of rejection is urged to be in order and is respectfully requested.

If there is any remaining point that requires clarification prior to the allowance of the Application, the Examiner is urged to telephone the undersigned attorney so that the matter can be discussed and expeditiously resolved.

Respectfully submitted,

BUCHANAN INGERSOLL & ROONEY PC

Date: May 24, 2007

By: Benton S. Duffett, Jr.
Benton S. Duffett, Jr.
Registration No. 22,030

P.O. Box 1404
Alexandria, Virginia 22313-1404
(703) 836-6620